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China Report

AGRICULTURE

No. 132



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CHINA REPORT

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I. GENERAL INFORMATION

CHINA AGRICULTURAL BANK DISCUSSES RURAL CREDIT COOPERATIVES

Beijing ZHONGGUO NONGMIN BAO in Chinese 18 Jan 81 p 2

[Article by Credit Cooperative Administration, China Agricultural Bank: "What Are the Regulations on Rural Credit Cooperative Loans to Commune Members?"]

[Text] Question: What is the significance of loan grants to commune members?

Answer: Granting loans to commune members has always been a major function of credit cooperatives. Such loans include those for production and for living. The individual economy is a necessary supplement to the socialist economy, and issuance of loans to help commune members develop individual production is of major significance in increasing the supply of goods in the market, in increasing the economic income of commune members, in raising standards of living, in making the economy of rural villages prosper, and in promoting the development of the collective, socialist economy.

Question: What are the policies and principles applying to loans?

Answer: Issuance of loans to commune members requires adherence to the pertinent policies of the party and the state. Credit cooperatives may, at their discretion, issue loans to support all undertakings permitted by policies that are in accordance with the current spirit of readjustment, and which have economic benefit. When policy does not permit individual undertakings, credit cooperatives may not issue loans. Loans are not issued to high labor for exploitation, for speculation and profiteering, or for engaging in feudal, superstitious activities.

Loans are made in accordance with the principle of "repayment of all loans on time," selectivity in support, and case by case merits, hastening the turnover of capital, and better service to the production and livelihood of commune members.

Credit cooperatives may exercise judgement in the issuance of loans. Within permissible limits of national policies, the issuance and collection of loans, the purpose, individual items, the amount, and the time limit for loans are decided by the credit cooperatives, and no unit or individual may interfere in such decisions.

Question: For what purposes are loans granted? For what individual items are loans granted?

Answer: All commune members residing in rural villages (including the environs of county seats and market towns) may apply to credit cooperatives for loans, and credit cooperatives will approve and grant loans in accordance with policy regulations and the limits of funds in the local cooperative. Items for which loans are made include: 1. help to commune members in the development of household sideline occupation production such as the raising of animals (including large animals such as cows and horses), planting, weaving, repairs, and service trades; 2. help to commune members to institute contracting for work with households or contracting for production with households, to solve their difficulties in finding funds for the purchase of seeds, chemical fertilizers, farm pesticides and herbicides, and small farm tools; 3. to help commune members solve livelihood difficulties by first solving difficulties in getting funds for the purchase of consumption grain, treating illnesses, or repairing houses, with help being given to the solution of other needs if excess funds permit.

Question: May loans be made for the purpose of building new houses or buying sewing machines?

Answer: Insofar as their financial resources permit, credit cooperatives may use their discretion in the issuance of loans to help commune members build new houses. In order to amass more funds, they may set up a special category of savings for the building of houses. When a commune member's savings amount to from 60 to 70 percent of the funds needed to build a house, the credit cooperative will issue a loan for the remainder. Credit cooperatives may also loan funds to help commune members buy sewing machines, bicycles and such durable goods.

Question: Is there any limitation on the amount and period of loans?

Answer: There is no general regulation as to the amount of loans. The amount is set mostly according to the actual needs of the requestor. The loan period is usually no more than a year, but if repayment within a year causes real hardship, an additional specific time limit may be set through consultation between the borrower and the credit cooperative. The interest rate payable on loans is handled in accordance with regulations.

Question: How is the method for the collection of interest on loans set?

Answer: Formerly the method of "clearing the interest at the same time as the capital" always applied to credit cooperative loans, meaning that when the loan funds were recalled, the interest was collected. In order to better adhere to the principle of "repayment of all loans on time," and to meet the requirements of credit cooperatives in exercising management over enterprises and the strengthening of economic accounting, the method for collecting interest was changed beginning in 1980. For newly issued loans, the interest computed for a year is collected. Loans issued prior to the end of 1979, however, still use the method of "clearing the interest at the same time as the capital." In this way the turnover of loan funds is accelerated and they play a better part in supporting production.

Question: What procedures are required to get a loan?

Answer: Regulations vary from place to place, but generally when a commune member wants to get a loan, a unit or one or two people must vouch for him and undertake economic responsibility. He fills out a loan application form, which the credit cooperative then examines, verifies, and approves or disapproves for a loan in a certain amount. Once the loan has been approved, a loan agreement (sometimes called a contract) must be filled out. The borrower, his guaranteeing unit or guarantors, and someone acting on behalf of the credit cooperative affix their signatures and seals to the agreement or contract to denote responsibility.

Question: How are loans made to individual economic units?

Answer: By individual economic units is meant individual operators who have been approved by industrial and commercial administrative units, who have a business permit, who do a normal business, and who have the ability to make repayment including individual handicraft industries, business, service trades, and repair businesses. Specific methods of making loans are the same as for commune members.

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CSO: 4007

MEASURES ADOPTED TO PROTECT FOREST RESOURCES

Heilongjiang Forest Protection

Beijing GUANGMING RIBAO in Chinese 29 Jan 81 p 2

[Text] "Save the forests as though saving from fire or saving a life" has been the urgent appeal issued recently by the Heilongjiang Provincial Government to all echelons of the People's Government and authorities concerned throughout the province.

Heilongjiang Province is a major timber production base in China. During the past several years, more than 2 million cubic meters of timber have been felled in excess of plan throughout the province, and exceeding the amount of forest growth. Reckless cutting and denudation has destroyed 9.8 million mu of forest resources. In order to protect forest resources so that the green mountains will long endure and continue to be available for use, the Provincial People's Government recently issued an urgent appeal, asking that each jurisdiction overcome their mistaken notions of sole concern with being wealthy for a time to the neglect of long-term benefits and not thinking about the creation of prosperity for succeeding generations. It also required each forestry bureau, forest farm, and all administrative offices, municipalities, and counties to immediately bring to a halt any arrangements for the felling of timber in excess of plan. Anyone not from forestry units who enters a forest area to cut timber or clean up a forest should be expelled at once. Any forest lands designated the property of farms or livestock farms may be timbered only following approval by the authorities in charge. Timbering by state farms, plant or mining enterprises, or rural communes and brigades of their own forests must likewise be part of an overall timbering plan. Those who recklessly fell trees and denude forests will be severely dealt with, and serious cases will require investigation and affixing of responsibility on leaders.

Reliance On Law

Beijing GUANGMING RIBAO in Chinese 29 Jan 81 p 2

[Text] Editorial Department:

Recently I visited a northern prefecture of Heilongjiang Province where I observed that the serious situation of reckless cutting and denudation of forests

has still not been completely halted. Comrades in forestry units emphasized that a determined halt to the reckless cutting and denudation to protect forest resources required staunch reliance on laws.

In the forest areas of Heilongjiang Province at the present time, every trade and industry is dealing in lumber, and the lumber market is presently in a chaotic state that is difficult to control. Fangzhen County is a small county in the forest region where there are 209 publicly and privately operated lumber processing plants, most of which have no permits to do business. In 1980, they processed a total of more than 15,700 cubic meters of timber, and all timber was purchased from production teams for private individuals.

The chaos in administration and management of timber has given speculators and profiteers a green light. The Anning Town Farm Machinery and Equipment Plant located in Anning County in the forest area had neither timber nor any capabilities for processing timber, yet it signed a contract with a unit in Daqing to undertake manufacture of 5,000 wooden doors and windows for the sum of 482,000 yuan. This plant purchased the materials to make each set of doors or windows at a price of 100.48 yuan, and then sold them to Daqing for 145.80 yuan, making a huge illegal profit of 141,000 yuan. Last year after the "two barrens" (barren mountain and barren lands), which had some woods, were assigned throughout the province to local production teams, 65,000 mu of land was entirely denuded within a year. The accumulated amount of forests thus cut was 147,000 cubic meters.

Why has this serious flaunting of the law and of discipline not been stopped? Mostly because of failure to enforce the law strictly. Following promulgation of the "Forestry Law," it was given thoroughgoing publicity for a time and then nothing definite was done about it. For a long time nothing whatever was done anywhere about the destruction of forests and the beating of personnel assigned to protect the forests. In order to bring a determined halt to the reckless cutting and denudation of forests, rescue the forests, and protect forest resources, forestry units have urgently required all echelons of government and related units to faithfully carry out national laws for the protection of forests in a determined reliance on laws to protect the forests. The work focus of procuratorial organs and people's courts in forest areas should be shifted at once to protection of forests. There should be diligent implementation of the recent regulations from the Provincial Government in a strengthening of unified management of the cutting, hauling, and dealing in timber. State-owned forestry units must fell trees only in accordance with lumber production plans, and they are not to fell trees outside the plan. In the felling of trees in their own forests, state-owned farms and livestock farms, plant and mining enterprises, and rural communes and brigades must also adhere to plans on the principle that the quantity of timber felled must not exceed the growth of timber. In order to be able to do a good job of investigating and planning, only after approval for the issuance of a timbering permit has been given many trees be felled under the supervision of executive departments of the forestry industry. The timber that is produced must be allocated jointly by the state and the province; independent marketing is not to be allowed. All kinds of existing timber processing plants must undergo

restructuring, and a concrete management plan must be formulated for forestry industry and non-forest industry production, and management over the transportation of timber must also be strengthened.

[Signed] Zheng Xiaofeng [6774 4562 2800]

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SELLING PRIVATE COTTON -- The state has instituted a state monopoly for the purchase and marketing of cotton, stipulating that cotton may not enter free markets. Commune members have the following two ways to sell private cotton. (1) Barter purchase. Policy provides that each commune member in cotton growing areas may retain from one to two jin of private cotton, and the state will purchase such cotton that the commune member may have for sale at the excess purchase price, i.e. at a 30 percent premium price over and above the local cotton purchase price paid by the state. Additionally, it will pay cloth coupons for five chi of cotton cloth for each jin of grade 1 to grade 5 ginned cotton. (2) State purchase. The state will also buy at the excess purchase price all cotton that commune members have grown on private plots, but will give no cloth coupons. [Text] [Beijing ZHONGGUO NONGMIN BAO in Chinese 15 Jan 81 p 2] 9432

CSO: 4007

BUMPER CROPS OF SUGARCANE HARVESTED

Fuzhou FUJIAN RIBAO in Chinese 21 Jan 81 p 1

[Article by Lin Chenguang [2651 2525 0342], "Fujian Province Wins Bumper Sugarcane Harvest Again; Establishment and Perfection of a System of Responsibility for Production Has Promoted Scientific Growing of Sugarcane"]

[Text] Judging from actual harvests taken from the canefields of Fujian Province following continuous cutting of sugarcane, which began in early December last year, it appears that per mu yields will largely exceed levels of the same period during the last previous crushing season. An estimated 70 million dan of cane will be produced throughout the province during the 1980-1981 crushing season, making this the fifth year of increased sugarcane production.

Last year Fujian Province continued steady implementation of its policy of linking cane and grain, which heightened the enthusiasm of the broad masses of cadres and commune members for increasing output of sugarcane, and the sugarcane acreage increased by 30,000 mu over the previous year. Last year, despite frequent natural disasters including the low temperatures and overcast or rainy weather of March and April, which both restrained and caused the rotting of seedlings, the drought of June, and the repeated typhoon attacks of September and October, nevertheless, thanks to improvements in administration and management throughout cane growing areas with the implementation of various forms of a system of responsibility for production whereby field management work was strengthened, a bumper harvest was won. Looked at in terms of experience, in units that linked output to the calculation of remuneration, the enthusiasm of commune members was higher, the fields tended better, and increased output more striking. The Xinan Brigade in the Xinglin District of Xiamen City instituted "five fixeds and one reward or penalty" for sugarcane production, i.e., fixed tracts, fixed acreage, fixed output, fixed workpoints, fixed costs, and total reward or total loss, which greatly aroused the initiative of commune members to care for the sugarcane. During the 53 days of continuous drought in June and July, commune members used all manner of means to search for water resources, and made full use of water stored in mountain ponds and catchments to water the sugarcane groves. They also made increased applications of manure to increase the ability of the sugarcane to withstand drought, thereby winning a greatly increased output of sugarcane. This brigade produced 4,400 tons of sugarcane during the previous year, but it is expected to exceed 10,000 tons during the current crushing season. During September and October,

Fujian Province's sugarcane producing areas were hit with two separate typhoons as a result of which much sugarcane was knocked down or broken off. Once the winds had stopped, numerous commune members in Yunxiao, Longhai, and Fuqing prefectures dashed into the fields at once to prop up the fallen sugarcane and bank the soil higher around it to reduce damage.

Last year also saw new achievements in the scientific farming of sugarcane in Fujian Province. Throughout the province, almost 200,000 mu of new superior varieties Minxuan 703, Mintang 70/611, and Yuetang 54/474 were grown. This amounted to 30 percent of the total sugarcane acreage. An estimated 9 to 10 tons per mu of Minxuan 703 and Mintang 70/611 will be harvested from the 40 mu of demonstration fields at the Laidian Superior Variety Demonstration Farm in Shanyou County. These superior varieties grow rapidly, have high per unit yields, and have a high sugar content providing a good foundation for increased output and increased amounts of sugar. Putian and Fuqing prefectures have extended to a wide area the five-times repeated experiences of Shanyou County in hilling and high hilling of sugarcane to promote sugarcane growth and reduce lodging. Each jurisdiction has also maintained appropriately close planting, propagation of seedlings for transplanting, and the techniques of using perennial roots and early care for increases in the number of effective stalks and a lengthening of the growing season. Shanyou County has promoted the intercropping of wheat and vegetables on more than 20,000 mu of land as a means of advancing the time when sugarcane may be directly sown, thereby increasing by 100 or 200 stalks per mu the amount grown in former years and increasing their height by from 10 to 20 millimeters. This plus an enhancement of the sense of responsibility of commune members for tending the fields, and the timely prevention and control of diseases and insect pests has made for an increase in the number of effective canes, even growth, vigorous growth, and a tidy appearance.

Last year saw substantial development in the capital construction of sugarcane groves in Fujian Province. Following construction of the Xiamen water diversion project and the fitting out of the Dongqi reservoir channel project in Shanyou County, the irrigated area was enlarged by from 40,000 to 50,000 mu. In the hilly coastal sugarcane groves of Jinjiang, Putian, and Fuqing prefectures, cadres and commune members sank wells, built mountain ponds and catchments, and purchased pumping and spray irrigation equipment to enlarge and improve irrigation of the sugarcane fields. As of last year, Fujian Province was able to irrigate a cane field area of about 400,000 mu, providing vigorous assurance of high and consistent sugarcane output. As a result of the strengthening of the system of responsibility for production, a large quantity of manure that commune members had collected themselves was applied to the cane fields, and this played a very great role in increasing the organic matter in the cane fields, improving their fertility, increasing the strength of the soil, and in satisfying the nutritional needs for growth of sugarcane. Zhangpu, Putian, and Longhai counties added sediment from the sea to sugarcane groves in hilly areas, and added silt to cane groves on lands reclaimed from the sea to improve the soil and increase its fertility, assuring that numerous hilly land cane groves and cane groves on land reclaimed from the sea would yield more than 10,000 jin per mu.

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SWEET POTATO INCREASE--Fujian Province has had a bumper sweet potato harvest this year with yields averaging 524 jin per mu (in terms of paddy) to exceed the highest recorded levels, and for a total output that was greater than last year. Fujian Province's per unit yields of sweet potatoes have increased only slowly during the past several years, and some years saw a decrease. This year, all locales including the major producing areas, in particular, buttressed their leadership over sweet potato production, put policies in place, took scientific farming firmly in hand, improved the conditions of production, and made a fierce attack on increased per unit yields. Despite the effects of drought during June and July this year, and a 200,000 mu reduction over last year in the planting of early and late sweet potatoes, plus attacks by natural calamities, nevertheless a bumper harvest was won. In the three major sweet potato growing areas of Ningde, Longqi, and Jinjiang, acreage was less than last year, yet total output increased by 6.7 percent, 2.5 percent, and 1.3 percent respectively. Loyuan County, which had a phenomenal increase in output, had a 17 percent increase in total output. Throughout the province there were high output fields and bumper output tracts. In Fuqing County, more than 420 mu of fields produced 10,000 jin of sweet potatoes. Adapting general methods to local situations, Dongshan County this year expanded sweet potato farming by more than 9000 mu for average yields of more than 1000 jin per mu (in paddy terms), a 200 to 300 jin per mu increase over the growing of paddy. [Text] [Fuzhou FUJIAN RIBAO in Chinese 29 Dec 80 p 1] 9432

CSO: 4007

COMBINATION OF MEASURES TO COMBAT DROUGHT TRIED IN GU-AN COUNTY

Shijiazhuang HEBEI RIBAO in Chinese 31 Jan 81 p 1

[Article by Office of Provincial Water Conservancy Department: "Combination of Diversion, Storage, Draining, and Irrigation to Increase Ability to Combat Drought; Gu-an County Accelerates Deep Ditch and River Network Construction to Win Bumper Harvests in Agriculture"]

[Text] Gu-an County has acted with due regard for realities to take firmly in hand construction of a deep ditch and river network to follow the combined road of diversion, storage, draining, and irrigation, greatly increasing the county's abilities to combat drought. Their experiences in this regard merit study and promotion in all jurisdictions with adaptation of general methods to local situations.

There are numerous places in Hebei Province that have the natural conditions and climatic characteristics of Gu-an County. Overall annual precipitation tends to be low in such places, and it is unevenly distributed throughout the year, with the result that water is inadequate to needs during autumn and spring, while rainfall is great during the summer season and simply runs away unused. A great conflict exists between the time when rain falls naturally and when crops need it, and frequently the spring is dry and the fall wet. Formation of a network of deep ditches and streams in a combination of water diversion, storage, drainage, and irrigation is an effective way to solve this conflict. By these means, it is possible not only to divert and store river water and local rainfall underground to make up for the shortage of water resources, raising the underground water and making full use of the benefits of mechanized wells to help combat drought to protect spring planting and protect autumn harvesting, but it is also possible to eliminate waterlogging, use mechanized wells to regulate the underground water table and thereby play a role in the control of alkalization, to broaden the irrigated area, to promote increased agricultural output and develop diversified farming. In all places where conditions permit, there should be continued building and equipping, in a planned and step by step way, of existing projects to impound water, retaining to the fullest extent

possible the natural precipitation and water in streams from the flood season, diverting it to underground storage, conserving it in the soil, and increasing capabilities to combat drought.

Gu-an County is located on the south bank of the Yongding River and has more than 650,000 mu of cultivated land. The topography of the county is high in the northwest and low-lying in the southeast, and it is prone to both drought and waterlogging. In the past it has relied principally on mechanized wells and the diversion of streams for irrigation. But inasmuch as surface water can be diverted for only short periods of time in the autumn and spring each year, it is not very dependable, and overtapping of underground water for a long period of time has caused a rapid drop in the water table. Furthermore, large areas of saline-alkaline soils have not been remedied, and consequently agricultural production develops very slowly. In order to quickly transform the conditions of production and increase the ability of the soil to combat calamities, Gu-an County's CCP Committee made surveys and studies, and summarized experiences. In 1976 it began work on the construction of deep channel and river networks, following a course that combined water diversion, storage, drainage and irrigation. First of all, they worked together with neighboring counties to excavate and dredge the Yinqing project. Next, they made a deep channel and river network in which the Yinqing project and the Mangniu River were the centerpieces. Over the course of several years, they dug 250 main and branch channels, totaling 1,421 kilometers in length, and built structures of various kinds in 356 different places to make the cultivated land throughout the province a smoothly operating impounding, discharging, draining and irrigating irrigation area--the Taipingzhuang Irrigation Area. Between January 1977 and the end of October 1980, this irrigation area diverted more than 700 million cubic meters of water for an average of more than 190 days per year. The diversion of a volume of more than 170 million cubic meters of water enlarged the area of watering and resistance to drought, strongly replenishing underground water resources.

In order to continuously upgrade standards for the deep channel and river network and to buttress construction of the irrigation area, Gu-an County established an irrigation area administration to bring under unified administration the main and branch channels and the major floodgate stations. They did a good job of managing and making use of facilities, insuring safety of the project, fulfilling plans for diversion, storage, draining, and irrigation, deriving full benefits, and collecting fees for water. They combined diversion, storage, draining, and irrigation in a demonstration of the huge benefits to be derived from comprehensive control of drought, waterlogging, and alkalinity.

First, they solve the conflict between a need for water and a lack of water to increase ability to combat disaster. Each year the period from March to May is the period when the need for water for spring sowing and for the growing of wheat is greatest throughout the county, but by this time the rainy season has not yet arrived and the rivers are dry. Following construction of the deep channel and river network, river water can be used earlier to be put into storage, and mechanized wells can be used earlier for irrigation in a combination of tapping and replenishment. Formerly, during this period each year, underground water fell by

an average of more than three meters, while as of the end of March 1979, the depth of the water table throughout the county was 2.35 meters and as of the end of May, it was 3.91 meters for a decline of only 1.56 meters during a period of 2 months. Additionally, the water diverted by the principal channels can go through the branch channels, lateral channels, and sublateral channels converging in the main channels to be carried away. The entire channel system can both bring water in and drain it away, and therefore during the 3-year period from 1977 to 1979, no serious disasters from waterlogging have occurred.

Second, it has helped transform the saline-alkaline soil. The deep channel and river network impounds a large volume of water and the water table is deep, being about 1.5 meters below the surface of the land. Not only can a large volume of water be stored to replenish the underground water, but it also makes it difficult for the salt and alkali in the soil to return to the surface of the soil. Furthermore, waterlogging as a result of excessive rainfall can be promptly drained away to prevent an accumulation of water in the surface of the soil and the creation of alkalization through massive evaporation. Since the mechanized wells are constantly added to, they also function in using water to cleanse the alkali. According to statistics, in 1966 there were 200,000 mu of alkaline and saline soil throughout the county, but by 1979, this had been reduced to 21,000 mu. In Mazhuang Commune, which had the greatest amount of alkaline-saline soil, there were 8,000 mu in 1975, but only 3,000 mu today.

Third, it has helped derive full benefits from mechanized wells. In 1976, there were 7,000 mechanized wells in the entire county. Formerly, because of the lack of replenishment of underground water resources, the cost of watering fields constantly increased. After 1977, however, as a result of the activation of the deep channel and river network, a striking change occurred in the aforesaid situation. The underground water table rose by from two to three meters and the volume of water delivered by mechanized wells was very normal. In 1980 when a particularly severe drought occurred with precipitation between January and October amounting to 300 millimeters, 420,000 mu of wheat were watered four different times, and more than 300,000 mu of medium and late crop corn was watered two or three times to triumph over the drought and win a bumper harvest in agriculture.

Fourth, it has promoted the development of diversification. As a result of the use of the deep channel and river network to divert water throughout the county, ponds have been transformed and utilized. A total of 230 ponds throughout the county have been refurbished. A pond area of 3,000 mu is used to grow 2.04 million fish; a pond area of 1.41 million mu is used to grow lotus, and a pond area of 1,700 mu is used to grow reeds (exclusive of dryland reeds). Total income last year from diversified development of ponds totaled one million yuan.

BRIEFS

RURAL SAVINGS — During 1980 a great change took place in the face of rural villages in Henan Province. Agriculture produced good harvests, and great growth took place in industrial sideline occupations. Both collective and commune member income showed great increases, much of it deposited in bank savings accounts, the total figure reaching the highest recorded level. As of the end of November, savings totaled 1.422 billion yuan, of which savings deposits by commune members amounted to 686 million yuan. [Text] [Beijing ZHONGGUO NONGMIN BAO in Chinese 25 Jan 81 p 2] 9432

CSO: 4007

PROPOSALS ON DIRECTION FOR AGRICULTURAL PRODUCTION OUTLINED

Yinchuan NINGXIA RIBAO in Chinese 22 Jan 81 p 1

[Article by Correspondent Jiang Senlin (5592 2773 7792): "Experts and Professors from the Ningxia-Hui Autonomous Region Make Seven Proposals On the Question of How to Direct This Year's Agricultural Production")]

[Text] At a symposium convened on 8 January by the Regional Science Committee, 12 experts and professors from the Ningxia-Hui Autonomous Region made seven proposals on how to direct this year's agricultural production, which aroused the serious attention of the Region CCP Committee and the Region People's Government.

1. Place the focus of increased output on agricultural technology in medium and low output areas of large tracts with great potential. In the Yellow River diversion irrigated area, there are more than 2.4 million mu of medium and low yield fields where per unit yields fluctuate around 200 to 400 jin per mu. Simultaneous with their attention to high output fields, every echelon of leadership should also focus on techniques for increased output from medium and low output fields. This is the way to tap the greatest potential and to see results fastest.

2. Great attention to the growing of green manure. The more than 220,000 mu of green manure grown last year in the irrigated area was extremely effective in increasing output and maintaining increased output, in making the soil fertile, and in lowering agricultural costs for the year. It is recommended that the area planted to green manure should be enlarged during the process of making adjustments whereby the very early and medium maturing rice-growing area is increased. On the basis of experiences in Zhongwei, Lingwu, and Qingtongxia, the best same year green manure for paddy rice is barley and jian peas [4628 6261].

3. The right variety for a particular place has to be used so as to make the most of advantages. The current way of doing things that pursues high yield varieties to the exclusion of all other considerations, and without consideration of different soil fertility and different climates in different places in the planting of rice and wheat has led to numerous mistakes in production. We must accept the lessons of experience and gradually change over to medium maturing high yield varieties, for the most part, in a sensible pairing of early, medium, and late maturing varieties, planting in accordance with the locale, avoiding, by all means, the planting of high yield varieties in low-lying saline-alkaline ground.

4. Continued readjustment of crop patterns. Experience has shown that given a good drainage and irrigation system, rotating rice with dryland crops can increase output and improve the soil. The year after year growing of dryland crops not only produces no increases in output, but also causes deterioration in the condition of the soil. In the low-lying alkaline-saline soil areas to the north of Yinchuan, and in places where the water table is high, appropriate reduction in the area planted to rice with enlargement of the area planted to wheat and to autumn crops other than wheat and rice would help produce high and consistent output.

5. Weeds are a prominent problem in agriculture in both the irrigated area and in wet mountain areas. In addition to improvements in the system of farming, there must be active promotion of chemical eradication of weeds, attention to the training of technical forces, and allotments of herbicides.

Forecasts call for a dry June this year, and careful attention to prevention and control of wheat aphids is a major action that can be taken to win an increased wheat harvest. During the past several years, prevention and control of aphids has emphasized yellow stunting with no serious attention being given to damage done in the late stage. This year, not only must there be a strengthening of forecasting and early warning on diseases and insect infestations, but also early preventive and control action must be taken with no relaxation of aphid control during the heading stage. In mountain areas, overall prevention and control activity must be undertaken against potato diseases.

6. Clearing of ditches to assist drainage. While leveling fields to reduce the irrigation area and to irrigate in a sensible fashion, serious attention should be given to care of the water drainage system, making full use of ditches, wells, and pumping stations to lower the underground water to promote production. A general removal of silt from drainage ditches this year is recommended, together with the completion of structures, and the clearing away of obstructions.

7. Forecasts call for a possible increase in the frequency of hailstorms this year. Mountain areas should give serious attention to guarding against hailstones, making preparations against hailstones as early as possible.

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CSO: 4007

MEASURES TO STOP RECKLESS LOGGING ADOPTED

Yinchuan NINGXIA RIBAO in Chinese 21 Jan 81 p 2

[Article by Jin Wenrui [7246 2429 3843]: "Action Taken To Put a Firm Halt to Reckless Cutting and Denudation of Forests; Diligent Implementation of the Urgent Notice from the State Council Throughout the Ningxia-Hui Autonomous Region"]

[Text] In conscientious implementation of the State Council's urgent notice on putting a firm halt to the reckless cutting and denudation of forests, every jurisdiction in the Ningxia-Hui Autonomous Region has taken vigorous action to protect forest resources. As a result, a corner has been turned in some counties, municipalities, and forest areas in the reckless cutting and denudation of forests.

After the State Council's urgent notice on putting a firm halt to the reckless cutting and denudation of forests was handed down, all echelons of leadership throughout the Ningxia-Hui Autonomous Region paid careful attention to it. The Forestry Bureau of the autonomous region organized three work teams to go into the Liupan Mountains and into Haiyuan, Tongxin, and Helan to inspect forest damage and help the local authorities institute measures for the protection of the forests. The Shizuishan Revolutionary Committee promptly convened a meeting of its two subordinate counties and suburbs to study the problem of forest protection. Following study, Guyuan County decided to close the free market in lumber in five communes in forest areas. The investigation teams participated in by cadres from public security, inspection, industrial and commercial, and forestry units dispatched by Tongxin, Pingluo, and Jingyuan counties traveled to communes and brigades where destruction to forests has been serious in order to propagandize the urgent notice from the State Council, to investigate, and to handle some matters involving destruction of forests. Jingyuan County also set up temporary timber checking stations along main transportation arteries. Following consultations between Guyuan administrative offices and Pingliang Prefecture in Gansu Province, it was decided to convene a special conference to set up joint fire prevention activities in the Liupanshan and Guanshan forest areas.

In order to carry out the spirit of the urgent notice, administrative authorities in the forestry industry in Helanshan and Liupanshan adopted vigorous measures. A meeting of officers in charge in plant and mining units in communes and brigades of Yanshan County was convened by the Helanshan forest authority, and assigned work for the protection of forests. Personnel responsible for forest protection in forest areas was increased from the 10-odd to slightly more than 30, and

drifters in forest areas were cleared out with the aid of the masses. This forest authority signed a joint defense accord with the Amenghelanshan Forest Farm in Nei Monggol. The Liupanshan Forest Authority assigned 300 people to form a forest propaganda team, which went into communes and brigades in forest areas to propagandize and to inspect and handle problems in the destruction of forests.

While promoting various forms of a system of responsibility for production, rural villages throughout the province also gave general attention to the protection of forests. Quite a few communes and brigades set up special forestry production or forest protection units and households. Some production teams where production was contracted with households or where work was contracted with households, took action to regulate forest authority, assigning trees to commune members for care, thereby reducing damage to them.

Some units concerned have reported that a small number of areas have been tardy in their implementation of the urgent notice from the State Council, some of them limiting action only to making appeals without taking any concrete, vigorous action, so destruction of the forests continues unabated.

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CSO: 4007

SAVINGS IN RURAL AREAS OF NINGXIA HUI AUTONOMOUS REGION INCREASED

Yinchuan NINGXIA RIBAO in Chinese 9 Jan 81 p 2

[Article by Zhou Wenjie [0719 2429 2638]: "Rural Village Savings Figures Increase Tremendously Throughout the Region; Savings by Population Engaged in Agriculture Average 15.74 yuan Per Capita To Exceed the 12 Yuan National Average"]

[Text] In 1980, rural village savings throughout the region continued tremendous growth. As of the end of February, rural village savings deposits amounted to 47.23 million yuan, a net gain over 1979 of 13.63 million yuan. As compared with the same period of 1979, Helan, Haiyuan, and Xiji counties had an increase of more than 110 percent; and Yongning, Zhongning, Tongxin, and Jingyuan counties had an increase of more than 70 percent. Per capita savings for the population engaged in agriculture throughout the region averaged 15.74 yuan, exceeding the national average of 12.00 yuan.

The major features in last year's creation of the highest recorded levels of savings deposits by the population engaged in agriculture throughout the region were three. First was that ever since the Third Plenary Session of the 11th Party Central Committee, further implementation of the party's economic policies for rural villages has strengthened the system of responsibility for production, and bumper grain harvests have been won. Growth has taken place in collective and commune family sideline industries. The price has been raised for some agricultural byproducts purchased by the state, meaning a striking increase in the economic income of the collective and of commune members. Second was another readjustment in the interest rate paid on savings deposits beginning 1 April last year, which further aroused the enthusiasm of the broad masses of peasants for eager participation in savings deposits. Third was a revival of the Bank of Agriculture, which enhanced leadership of savings activities. Everywhere bank and credit cooperative cadres changed their work styles, adhered to the practice of putting on a backpack and going into the countryside, entering villages and visiting households to bring service to the door. They also made a point of helping communes and brigades do a good job of distributions at year end, getting people to save, and amassing more funds for this year's agricultural production.

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BRIEFS

BUMPER OIL-BEARING CROP HARVEST—Taole County enlarged the area sown to oil-bearing crops. In 1980, output of oil-bearing crops totaled 370,000 jin, a 57 percent increase over the previous year. While giving attention to grain production last year, the entire province also developed production of oil crops, with the county calling upon rural cadres and commune members to produce more oil and consume more oil to arouse the enthusiasm of commune members for growing oil crops. Oil crop acreage was expanded by 1000 mu throughout the county, and many production teams devoted their good land to the growing of oil-bearing crops. Inasmuch as the white, stiff clay and saline-alkaline soil with which this county abounds is suitable for the growing of sunflowers, communes and brigades enlarged the area sown to sunflowers. In former years, the No 11 Brigade of Yonghong Commune grew only 20 or 30 mu of oil-bearing crops, but last year it grew 120 mu, and harvested 10,000 jin of oil-bearing seeds for a more than three-fold increase over the previous year. As a result of the bumper harvest of oil-bearing crops, the state benefited and the people were happy. In 1980, the county sold to the state more than 30,000 jin more oil-bearing crops than in 1979, and oil distributions to commune members averaged 7 jin. [Text] [Yinchuan NINGXIA RIBAO in Chinese 21 Jan 81 p 2] 9432

CSO: 4007

YEAR-END DISTRIBUTION POLICY AIRED

Beijing ZHONGGUO NONGMIN BAO in Chinese 15 Jan 81 p]

[Article by Correspondent Shi Zhihong [2457 5347 7703]: "Narrow the Income Gap Between Commune Members Engaged in Industry and Engaged in Agriculture. Shanghai Suburbs Readjusts Year-End Distribution Policy"]

[Text] The Shanghai suburbs are the foremost area of China in which rural commune and brigade industries developed relatively high. In 1979, total output value for commune and brigade industries in the entire suburban area amounted to 2.09 billion yuan, and further tremendous growth occurred last year. Along with the growth of commune and brigade industry has come an enlargement of the gap in income distributed to those commune members engaged in agriculture and those engaged in industry. Last year agricultural disasters reduced output and reduced income while commune and brigade industries increased output and increased income, and this gap will become attenuated in the future. Some commune members engaged in agriculture have said that last year their income was less by the price of one Shanghai brand wristwatch, and this year it looked as though it would be less by one imported wristwatch. The mentality of slighting agriculture and the inclination to stray away from agriculture has become a marked tendency.

The Shanghai Municipal Agricultural Committee has investigated and studied this new development and has clearly stated that commune members service in agriculture and service in industry constitutes a division of labor within a people's commune, and that remuneration for labor should be essentially equal. The current situation in which income received by commune members engaged in industry is vastly greater than the income received by commune members engaged in agriculture is irrational, and unless this is satisfactorily dealt with, it will seriously impair the enthusiasm for production of those commune members engaged in agriculture, and will impair agricultural production, particularly the development of grain production. Conversely, it will weaken the foundation of commune and brigade industry.

Recently the Shanghai Municipal Agricultural Committee convened a meeting of county CCP Committee secretaries from each of the suburban counties to discuss and decide this matter. Beginning with the 1980 year end distributions, adjustments must be made in the distribution policy to narrow differences, to mitigate contradictions, and to stabilize agriculture. They put forward three main measures for readjustment.

First, appropriate increase in the amount by which commune members engaged in agriculture share in profits from industry. During the year before last, shared profits amounted to 36.1 million yuan, which was 8.3 percent of net profits for communes and brigades for that year, or an average 11.15 yuan per capita. In 1980, the amount of shared industrial profits should be increased from 10 to 15 percent, or 20 percent at maximum.

Second, distribution of shared profits should take into consideration all "pure peasant households" engaged in agriculture. A practical method is (1) proportional distribution of shared industrial profits to production teams on the basis of their output of farm crops, and work force working the land, with production teams making distributions on the basis of workpoints earned in agricultural labor; (2) use of a portion of the shared funds to reward pure peasant household commune members who continue to participate in collective production to narrow the gap in income between pure peasant households and peasant households engaged partly in agriculture and partly in industry.

Third, control the annual amount of award money to commune members engaged in industry so that it does not exceed base wages for 2 months, with the excess being retained for collective welfare funds. Units that make great contributions may receive appropriate increases in rewards in the form of advanced awards, with determination of the amount of increase in awards being decided by convening a conference of commune member delegates. If the original formulations for a minority of units are not sensible, and the amount of money awards excessive, appropriate adjustments can be made through consultation with the masses.

After the aforesaid readjustment measures have been instituted, the income gap between commune members engaged in agriculture and commune members engaged in industry will be greatly narrowed.

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C50: 4007

PROTECTION OF WATER CONSERVANCY, SHELTER FORESTS DISCUSSED

Kunming YUNNAN RIMAO in Chinese 24 Jan 81 p 2

[Article by Li Zhizhong [2621 1807 1813], Forestry Bureau, Honghehanyi Nationality Yi Nationality Autonomous Zhou: "Need to Protect Water Conservancy Projects and Shelter Forests"]

[Text] Yunnan Province abounds in rivers, and its water conservancy resources are abundant. As of the end of 1977, throughout the province more than 280,000 water conservancy projects of various kinds had been built of which more than 4,000 were large and medium size reservoirs with a designed capacity of more than 5 billion cubic meters. These plus natural lakes with a water surface of approximately somewhat more than 1.6 million mu bring the total water storage to more than 29 billion cubic meters. These water conservancy projects provide advantageous conditions for the development for use of the water conservancy resources of Yunnan Province.

In the course of many years spent in building water conservancy, however, the building of shelter forests has been neglected. In the capital construction of farmlands, emphasis has gone solely to water conservancy as the lifeblood of agriculture while neglecting forests as the fountainhead of water conservancy. Because protection of forests has been overlooked and because steady increase has taken place in the destruction of forests to open up land to agriculture, and reckless cutting and denudation of forests has gone on, trees have been felled on both sides of irrigation ditches and channels all around reservoirs. Water conservancy facilities have been unable to attain replenishment of their water resources and intended effectiveness of projects has not been realized to the severe detriment of industrial and agricultural production, and use of water by the people in their daily lives. Statistics show that drinking water is a problem more than 1.6 million people and more than 1.2 million head of cattle throughout the province, and the area of water shortage has increased fivefold over the 1950's. In Yunnan Province's Honghehanyi Nationality Yi Nationality Autonomous Zhou alone, more than 1000 production teams lack water. Even though Mengzi, Kaiyuan, and Gejiu prefectures have built some key projects, water usage continues very restricted, and competition for water between industry and agriculture is very serious. Mengzi County is the foremost drought area in Yunnan Province. Ever since 1958, every nationality in the county has annually built water conservancy, and invested large amounts of manpower and materials, and the

state has also expended a large quantity of funds, but the drought situation continues there to this day. Its poverty results from a scarcity of water, which is rooted, in turn, in a lack of forests. According to a 1973 survey of forest resources, the forested area of each county amounted to only slightly more than 370,000 mu, and the reforestation rate was only 10.2 percent. In recent years, moreover, a tremendous decline has been underway. Deprived of their forest protection, accumulation of silt in the reservoirs has become serious. According to a survey conducted in 1980 at the Xiangshui River Reservoir in that county, erosion is serious along the course of the river because of a dearth of forest resources, and 800,000 cubic meters of silt have already accumulated in the reservoir. This amounts to one-third the capacity of the reservoir. By contrast, the Feibai and Zhuangzhai reservoirs, with a combined capacity of 24.7 million cubic meters, have accumulated a total of only 10,000 cubic meters of silt during the past 20 years, because they are located within the densely forested state-owned Qianwei forest farm area. Pertinent data show silting to be serious in 54 of the existing large, medium, and small reservoirs throughout the province. In 33, silting is fairly serious and the reservoirs are approaching being completely silted. Twenty-two have been completely filled with silt or silting is above the stagnant water level. When forest resources are destroyed, not only does erosion and the silting of reservoirs occur, but the capacity of reservoirs to store water is directly affected as well. Reservoirs throughout the province have a designed capacity of 5 billion cubic meters, but in recent years, they have stored only 3 billion cubic meters. Granted that this is partly the result of dry weather, destruction of forests is also an important factor. The Yuejin Reservoir in Jianshui County is a medium size reservoir with a designed capacity of 63.2 million cubic meters.

According to an investigation, during the past several years the forest resources in a 1.8 million square kilometer area through which water flows into the reservoir have been dramatically reduced; the once dense forests that existed everywhere have now become largely sparsely wooded lands. The water storage capacity of the reservoir, which once ranged from 18 million to 37 million cubic meters, has become less and less in recent years. In 1979, it could store only 7.75 million cubic meters of water, and as of the end of September last year, it could store only 5.17 million cubic meters. By contrast, at a place not far upstream from the Yuejin Reservoir lies a small reservoir with a storage capacity of 450,000 cubic meters, the Hongxing Reservoir. Because the natural luxuriant forests of the surrounding mountains have been preserved, as of the end of September last year, not only was the reservoir filled with water, but outside the reservoirs, brooks babbled and water flowed continuously. Since its construction in 1971, this small reservoir has year after year assured the irrigation of 1200 mu of farmlands down stream. The two reservoirs are in the same area and both have endured several years of drought, but the benefits from the two construction projects have been as different as night and day.

Forests have an organic usefulness in the conservation of water resources and preserving the natural environment and climate, and they play a unique role in protecting reservoirs, streams, ditches and channels, and such water conservancy projects as well as controlling drought and floods. When forests are destroyed, water's blessings are destroyed or even turned into a curse. Both banks of the

Xincheng River in Xincheng Commune in Shiping County have vaulting mountains that used to be covered with luxuriant forests. But since 1963, as a result of heavy timbering for export outside the province, plus reckless cutting and denudation, a very great toll has been taken of the forests, and some forests remain in only 10 or so production teams throughout the commune. For the past several years, torrential rains have created calamities virtually every year on both banks of the Xincheng River. Great mountain torrents occurred in the years 1971, 1978, and 1979. These mountain torrents carried large quantities of sand and rocks, which came cascading down to cause disaster for the people of Xincheng Commune. They shattered two small earthen dams, 9,500 meters of river embankments, and three bridges, and knocked over 18 utility poles, demolished 80 homes, and buried 1,110 mu of farmland, destroying more than 1.32 million jin of grain. Now 25 kilometers of the 30 kilometers of streams that feed the Xincheng River throughout the commune are filled with silt and stones to an average depth of one meter, and the quantity of silt, sand, and stones totals about 620,000 cubic meters. Annually, this commune has had to invest more than 5000 man days in fighting floods and dealing with emergencies, and it has driven 30,000 piles to prevent flooding. After the flood waters receded, it was additionally necessary to put 50,000 people to work to remove the sand from the fields. The large quantities of silt, sand, and stones in the streams and in the mountain bamboo groves still threaten the safety of the farmlands.

The experiences of the past 30 years tell us that unless the construction of water conservancy is paired with the building of the forestry industry, an extremely passive situation results. Not only is it impossible to make full use of the benefits of the projects, thus creating a great waste, but drought and flood disasters may be perpetrated. Research shows that with a 30 percent forest cover rate in the area of streams that feed reservoirs, if these are properly positioned, drought and flood disasters can be substantially controlled. Therefore, it is suggested that concurrent with water conservancy construction efforts, all echelons of government and related organizations should delineate shelter forest protection areas for their projects, accelerate the building of shelter forests, and make full use of the organic reservoir that shelter forests are to serve man-made reservoirs.

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IMPROVEMENTS TO ENVIRONMENTAL SANITATION IN YUNNAN'S COUNTRYSIDE

Kunming YUNNAN RIBAO in Chinese 12 Jan 81 p 3

[Article by Wei Changzhou (7614 1603 3166): "Results Achieved in Environmental Sanitation Work in Yunnan Province's Rural Villages. Good Job Done in Improving Drinking Water and Taking Care of Nightsoil to Assure People's Physical Health"]

[Text] For the past several years, rural communes and brigades in Yunnan Province have persisted in practical action, obtaining definite results from active launching of work for the improvement of drinking water and taking care of nightsoil. Wells throughout the province that have been improved number 7539, and newly constructed public and private toilets number more than 230,000. An additional 568 disaster toilets have been built. In places where a good job has been done in improving the drinking water and looking after the nightsoil, contagious diseases have strikingly declined.

Recently, the Provincial Public Health Department and the Provincial AI [1947] Committee convened a rural village sanitation work forum in the Guandu District of Kunming City for the summarization and exchange of experiences in this regard. By repairing their wells in accordance with sanitary requirements, all nine of the natural villages in the Xiaoba Brigade of Shaqiao Commune in Nanhua County were able to bring under control the seriously virulent Keshan disease, and the incidence of dysentery, typhoid and ascariasis greatly diminished. Anning County was particularly watchful in solving the problem of sanitary drinking water for the people and livestock of rural villages. Through the efforts of the public health units, they installed running water for 172 production teams (amounting to one-third of all the production teams in the county). Formerly the masses from Gaoqiao Village in Ala Commune, Guandu region used open air latrine pits where the mosquitoes and flies swarmed in droves, and where the feces and urine washed away. Last year, 51 households in the village converted to private toilets with walls and a covering of reeds in which the nightsoil was contained. These were both clean and sanitary, and preserved the effectiveness of the waste, and commune members were completely satisfied with them. In the Guangai Production Team of Mengding Commune in the Gengnatai Nationality and Wa Nationality Autonomous County, malaria was prevalent for the past several years as a result of poor environmental sanitation. Doctors from the county epidemic prevention station helped the masses sink wells and changed their habit of

drinking from ditches. They also built toilets to take care of both human and livestock nightsoil. In this way common illnesses very quickly diminished, and the incidence of malaria also fell.

At the present time, in many places throughout the province, the drinking water problem has not yet been solved, and this directly affects the physical well-being of commune members. For this reason, the forum hopes that all levels of leadership will give close attention to environmental sanitation work in rural villages, first through planned development of rural village water sources and a survey of how nightsoil is taken care of, so as to get an appreciation of the sanitation situation as it applies to drinking water and nightsoil, and formulate plans, give attention to test sites, and work out step by step improvements in rural village drinking water and the tending of nightsoil.

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C50: 4007

FULL DEVELOPMENT OF YUNNAN'S UNDERGROUND WATER URGED

Kunming YUNNAN RIBAO in Chinese 23 Jan 81 p 2

[Article by Qin Yuhua [4440 3768 3352] and Wang Zhengduan [3769 2973 4551]: "Development For Use of Yunnan Province's Underground Water Both Positive and Sensible. An Interview of Some Technicians in the Hydrology Company of the Provincial Geology Bureau"]

[Text] It is now mid-winter and rural villages everywhere in the province are taking the opportunity to build water conservancy projects. According to reports, water conservancy construction last winter and this spring had a new feature. In addition to taking in hand continued construction and fitting out of existing projects, intensifying management, making the most of benefits from existing water conservancy facilities, and putting to full use surface water and natural precipitation to serve agriculture, some counties and communes began to give attention to developing underground water resources. Just what are the prospects in Yunnan Province for development and use of underground water resources? What problems merit attention in the course of development? Recently we interviewed the Hydrology Company of the Provincial Geology Bureau, discussing these questions with some of the technicians there.

Yunnan's Underground Water Reserves Abundant; Outlook Optimistic

Technicians from the Hydrology Company said that in view of the realities of Yunnan Province's geography and lack of electricity in rural villages in the past, the focus in water conservancy construction on surface water and natural precipitation has been, from a policy standpoint, a correct one, without doubt. However, the realities of today show that sole reliance on the use of surface water and natural precipitation is far from being able to satisfy the needs of agricultural development. The situation during the past several years shows that in every dry year, though many places may have reservoirs, there is either no water to store in them or the water in storage is insufficient, and sometimes drinking water for people and for livestock becomes a very difficult problem. In some places, because of the limitations of geological conditions or natural conditions, the building of reservoirs is either not feasible or not economical. Some reservoirs and their conveyance systems leak badly, so that even in years when precipitation is copious, it is difficult to keep them full of water, and thus their benefits cannot be exploited to the full. In most of the crop growing

areas of Yunnan Province; the degree of surface water utilization is fairly high, and little unused potential exists for further development. A program that combines use of surface water with underground water must be adopted, with development and use of underground water becoming the principal aspect of water conservancy construction.

Hydrology Company technicians told us that Yunnan Province's underground water reserves are abundant, and the outlook is optimistic. The climate of the Yunnan Plateau is peculiar and the geological structure complex. Karst topography covers 40 percent of the area of the province. Surface water readily percolates through such strata, and the cracks, grottoes, and underground rivers that exist in the limestone rock are very well developed, providing excellent conditions for trapping water. According to data provided as a result of hydrological or geological surveys, the amount of underground water throughout the province is about 40 percent of the amount of surface water. The Binchuan, Luliang, Zhaotong, Jianshui, and Yuqi plains contain underground water resources that are readily developable for use. A preliminary survey conducted in 34 large and small basins in eastern and southern Yunnan show an annual average total volume of underground water of 5,214,500 cubic meters per day. Since the year before last, the Jianshui Plain has had no rainfall for 19 consecutive months, and the volume of water in reservoirs and ponds dropped from one-half to two-thirds the amount in normal years. But the underground water in a shallow stratum here is exceptionally abundant, and once the masses tried to develop the underground water, they benefitted within a short period of time.

Development of Underground Water is the Principal Way to Increase Irrigation of Farmlands

Use of underground water, as far as rural villages are concerned, comes down mostly to a problem of power. A look at the situation in Yunnan Province shows that after numerous years of effort, substantial development has taken place in electric power enterprises. Quite a few counties and communes have built small hydropower stations, and electricity supply to rural villages has increased remarkably, creating conditions for the drawing of underground water. The experience of some counties, communes, and brigades has opened a broad vista for the development and use of underground water.

The Binchuan Plain has historically been a notably dry area. Since 1978, the cadres and masses here have used data supplied by geological work to sink more than 1000 motor-pumped and hand-pumped wells, and they have tapped numerous rock springs and pools to increase irrigation on more than 30,000 mu of land and to solve the water problem for some people and livestock. Some of the production teams in Goujie Commune in Yilang County depended on water wheel pumping stations to raise water for irrigation from the Nanpan River, where the water table is low, but much electricity was thereby consumed and costs were high. Following a ground surface survey conducted over a wide area by the No 2 platoon of the hydrology brigade, a sector containing an automatically flowing water-bearing structure was circled and an advantageous spot in it selected for drilling, which brought in an underground quantity of water amounting to more than 13,000 cubic meters in the course of a day and a night. This was used to increase

irrigation of more than 1300 mu of spring-sown crops, and to maintain irrigation of more than 7000 mu of winter crops. Half of the amount in storage flowed by itself to provide irrigation. On the Changjie Plain in Shizong County where surface water had been exhausted, attention has turned during the past several years to the development of underground water stored in grottoes for which purpose a total of five wells had been sunk and grottoes and pools tapped in more than 10 places for the irrigation of one-third of the fields with underground water. The masses in Shilin and Weize communes in Lunan County, at Majie and Xiaobaihu communes in Luliang County, and in Jianshui and Huize counties have had a taste of the goodness of developing and using underground water.

Use of underground water to irrigate farmland has several advantages.

1. Results are quick and the investment is small. The underground water in the gravel and grottoes of Yunnan Province is only shallowly buried, and tapping it for use can be done quite conveniently. A 100 meter deep well takes only about 2 months time to be put to use at a total cost of about 25,000 yuan. At Xiongbai in Shichong County, cost of sinking a well to irrigate spring-sown crops totaled only somewhat more than 16 yuan per mu, and only 2.80 yuan for winter crops.
2. Convenience and flexibility. In places not suited to the building of reservoirs or that lack the conditions for the construction of reservoirs where underground water exists, flexible measures may be adopted on the basis of the local crop patterns and the amount of land cultivated, the ability of the masses to bear the burden and the availability of electricity. If much water is required, the scale can be large; if little water is required, the scale can be small. Work may be completed a section at a time in a gradual enjoyment of benefits.
3. Few pipelines or conduits are required. Development can take place on site with little damage to water volume. Furthermore, in most places water quality is rather good; it may be used both for irrigation and for drinking by people and livestock.

Attention to Rational Use to Prevent "Killing the Goose That Lays the Golden Eggs"

The Hydrology Company technicians pointed out that development of underground water requires "reasonableness," and an anarchic situation of blind excavation, reckless excavation, and destruction of resources must be positively forbidden. First of all, development of underground water requires scientific and all around survey and prospecting to determine the reserves and their replenishment. One cannot simply start work blindly and blunder about, caring only about the present and bequeathing a legacy of trouble for coming generations.

Second, wells must be layed out in a sensible fashion, and be monitored and managed in an overall way for a long period of time. Since the distribution of underground water obeys its own geological laws and there is a definite limit to stored reserves, wells must be layed out in a sensible fashion. Which places are suitable for the sinking of wells, how many wells should be sunk and how big or how deep they should be all require accurate calculations in advance, otherwise only half the results will be obtained from twice the effort, the rate

of successful wells will not be high, and benefits will be impaired. In the course of the digging, long term monitoring of the underground water is necessary to determine changes in the water table so that commensurate action may be taken. Some years ago, some places in other provinces damaged their water resources by overtapping them. The water table dropped, causing serious sinking of the soil over large areas, requiring vast expenditures to save the situation. In the Kunming area of Yunnan Province, reckless development and tapping has also occurred during the past several years, which may be symptomatic of a trend toward destruction of resources. In some places, underground water has been polluted, and in some sectors, a serious decline in the water table has caused the sinking of the ground in individual places. Unless such situations are promptly controlled and not allowed to continue, the consequences will be extremely serious. We should summarize experiences, absorb their lessons, and take a warning. The key to the solution of these problems is intensification of unified management. Government organizations should establish with all possible speed protective regulations on the development and use of underground water resources, and either empower or set up an appropriate organization for the uniform management of such work to prevent a situation of piecemeal anarchy.

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CSO: 4007

BRIEFS

FRESHWATER FISH BREEDING IN DALI COUNTY -- Each of the communes and brigades in Dali County are making full use of lakes and ponds to raise fish to provide fresh fish to the marketplace and increase collective income. For the past several years, some communes and brigades in Dali County have emphasized development of grain production to the neglect of production in the fishing industry. Lakes and ponds suitable for the raising of fish were converted to the growing of grain, thereby reducing the amount of fish available in the county, and causing a shortage in the markets. For the past 2 years, the County People's Government has treated the raising of fish as an advantage that Dali County can exploit. The County Water Conservancy Bureau established aquatic products stations, sending people from one commune and brigade to another to put into effect plans for the raising of fish in lakes and ponds. The eight communes in the county have 112 lakes and ponds, and by last year 68 of these lakes and ponds were already producing fish. They had been stocked with 3.53 million fry. The Nancun No 4 Brigade in Haidong Commune also took advantage of the slack season in farming to dispatch a workforce numbering more than 200 with 70 wheelbarrows and 10 boats to move earth and rock. More than 40,000 people were put to work and more than 1 million cubic meters of earth and rock was moved to build an embankment measuring 1100 meters long, 4 meters wide, and 5 meters high to form an area more than 230 mu in area for raising fish, which was stocked with 120,000 fry. Each commune and brigade selected commune members with experience in the raising of fish and with a strong sense of responsibility to take care of the fish ponds, to cut fish grass [yucuo 7625 5430], to feed the fish, and to prevent unauthorized fishing. As a result of the diligent care given them, the survival rate for the fry was universally high; they grew quickly, and within a year each fish weighed more than a jin. Last year a few brigades did some fishing, selling more than 36,000 jin for earnings of more than 35,000 yuan. [Text] [Kunming YUNNAN RIB.] in Chinese 20 Jan 81 p 1] 9432

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* JPRS NOTE: This article will be translated and published in the JPRS China Report on Agriculture.

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AUTHOR: JIAN Hongqin [4675 7703 0530]

ORG: Agricultural Technology Extension Station, Yongding County

TITLE: "Hybrid Rice Seed Preparation in the Spring With Water From Warm Springs"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 1, 10 Feb 81 pp 3-6

ABSTRACT: When hybrid rice seed preparation is done in the autumn, the effect of the weather condition often causes the yield to be less than expected, and a contradiction is created for the supply of hybrid seeds in the following year. One of the ways of resolving the problem is to prepare the seeds in Hainan Island. That was the way it was done in the past, while transportation difficulties and heavy expenditure of money and manpower caused additional problems. Following adequate survey, analyses, and research, the agricultural technologists of Yongding county proved the feasibility of cultivating seeds in the spring with water from warm springs. The first test was accomplished in the spring of 1977. The practice of the past 3 years demonstrates that in this manner the cost of preparing hybrid rice seeds is less than one tenth of the cost of preparing them in Hainan Island. The technical essentials are discussed.

AUTHOR: ZHENG Hua [6774 5478]

ORG: Longqi District Seed Company

TITLE: "Technical Measures for Achieving High and Stable Yield in Preparing Seeds of Sanyou No 2"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 1, 10 Feb 81 pp 6-9

ABSTRACT: In recent years, the various counties of the district have dispatched frequent good news regarding the superior performance of Sanyou No 2, a hybrid rice and requests for seeds are coming in large quantities. Seeds of Sanyou No 2 are difficult to prepare and the yield is low, however. In 1979-80, the company carried out extensive studies on the biological characteristics and essential cultivation technique for the Zhenshan male sterile line, which is used to prepare Sanyou No 2 seeds. Although from the 5763.64 mu of seedbeds in the district, the yield averaged only 45.2 jin/mu, individual brigades created records of 283, 96.62, 167.4, 187, 202.45, and 322 jin/mu. Based upon these accomplishments, this paper analyzes several related problems in the seed cultivation technique of this breed of hybrid rice.

AUTHOR: LEI Jiecheng [7191 2212 2052]

ORG: Institute of Rice and Wheat Research, Fujian Provincial Academy of Agricultural Sciences

TITLE: "Progress in Research on Heterosis Utilization of Xian-Geng Hybrids"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 10 Feb 81 pp 10-14

ABSTRACT: Hybridisation of xian and geng varieties of rice means crossing *O. sativa* L. subsp. xian Ting and *O. sativa* L. geng Ting. It has been attempted numerous times here and abroad, and powerful heterosis of hybrid F_1 , in biological superiority, in number of spikes, and in number of grains has attracted the attention of scientists, although in most cases, the fruiting rate is low. There remain a few groupings expressing high fruiting rate, however. Efforts are, therefore, being concentrated on finding new groupings to improve the fruiting rate and to produce even better overall properties. Recent achievements with respect to the economic property of the F_1 , the distribution of full grains and empty grains in various parts of the spike, in anther analysis to study the reason for the low fruiting rate of F_1 , and in the observation of the xian or the geng characteristic of the hybrid F_2 are reported.

AUTHOR: ZHENG Jiuru [6774 0046 1172]
LOU Shilin [2869 1102 2651]

ORG: ZHENG of Institute of Rice and Wheat Research, Fujian Provincial Academy of Agricultural Sciences; LOU of Department of Biology, Xiamen University

TITLE: "Isoenzyme Analysis of Rice Parent Materials"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 10 Feb 81 pp 14-16

ABSTRACT: In order to isolate from the offsprings a superior stalk from sexual hybridization of rice, the first problem to be resolved is the selection of ideal parent materials. Previously, in either near or distant hybridization work, breeding specialists normally observed the external characteristics to select the parents and to identify the hybrid offsprings. This method has successfully created some superior breeds and accumulated some rich experience. With the development of molecular biology, the use of changes of isoenzyme spectrum to study the geographical distribution, classification of species groups, and genetic variations has begun to identify differences that are difficult to determine by external morphology alone. Many organizations [in China?] have started to use isoenzyme analysis to study distant hybridization of crops, to match parents in hybridization, to predict heterosis of hybrids, to determine disease and pest resistance of crops, etc. This paper reports the authors' work of peroxide and starch isoenzyme analysis of some commonly used rice parent materials.

AUTHOR: CHEN Xinyuan [7115 1800 3220]
SHA Zhenggui [3097 1767 6311]

ORG: Both of Fujian Provincial Academy of Agricultural Sciences

TITLE: "A Tentative Plan of Agricultural Regionalization in Fujian Province"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 1, 10 Feb 81 pp 17-20

ABSTRACT: Fujian Province is located on the southeastern coast of China, with a total area of 121,700km², and 10.6 percent in cultivation (19,420,000 mu), averaging 0.78 mu of cultivated fields per capita. As it is in a subtropical zone, with mountains on one side and the sea on the other, the climate is warm and rainfall abundant. Hills, river valleys, and basins crisscross throughout, while mountains and hills occupy more than 90 percent of the province. The authors suggest in the plan a region of dry crops, fishery, and orchards for the coastal hills, a region of grains and economic crops for the southeastern plain, a region of grain, forestry, fishery, and tea in the northeastern coast, a region of forestry, grains, and tea for the northeastern mountains, a region of grains, forestry, animal husbandry, tea and orchards for the northwestern inland slopes, and a region of grains, forestry, tea, tobacco, and orchards for the southwestern inland mountain valleys. The plan for each of these regions is discussed.

AUTHOR: WU Yongqing [0702 3057 3237]

ORG: Fuzhou Municipal Agricultural Technology Station

TITLE: "An Investigation Into Measures to Prevent and Resist Cold Damage to Wheat"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 1, 10 Feb 81 pp 28-31

ABSTRACT: In Fuzhou region, the spring wheat was severely attacked by a cold wave in 1980. There was even snow on 8 Feb to leave the average wheat yield to 116 jin/mu only, a reduction of 70 jin/mu from the previous year. This paper is an attempt to analyze the symptoms of cold damage to wheat, the growth and development stage when wheat is sensitive to cold weather and the temperature index, the varying cold resistance of breeds, and measures to protect wheat from cold damage, for the purpose of developing a strategy to combat this problem.

AUTHOR: XIE Bangshu [6200 6721 2691]

ORG: Fuan County Agricultural Technology Station

TITLE: "Effects of Low Temperature [Treatment] on the Maturation Stage of Intermediate Ripening Cabbage Type Rape"

SOURCE: Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 10 Feb 81 pp 33-36

ABSTRACT: With the problem of previous crops, the coastal rape region in South China often has the trouble of delayed ripening with the cabbage type rape. The key to high yield of superior quality rape in Fuan County is to find ways to hasten maturity of rape. Although various breeds have different temperature requirements, the factor influencing the length of the growth and development period remains primarily the temperature. Scientists have previously studied the use of vernalization to pretreat seeds at 3°C for 28 days. Although the yield increase result appears to be obvious, the length of the vernalization period and the optimal temperature remain to be decided. This paper reports experiments with various vernalization schemes for 4 local breeds to study the effects of each scheme on the number of days of each stage of the growth and development period of each breed, as well as the yield structure. Controls are provided to compare these effects. Due to the irreversible nature of the different stages of development, the author suggests that small area tests should be carried out by each locality before adopting a vernalization scheme.

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CSO: 4009

Agricultural Sciences

AUTHOR: GAO Yinkui [7559 6892 1145]
WANG Jiansheng [3769 1696 0022]
ZHANG Zhifu [1728 0772 1133]

ORG: None

TITLE: "Problems in Upland Wheat Culture in View of Dead Wheat Seedlings Last Year"

SOURCE: Taiyuan SHANXI NONGYE KEXUE [SHANXI AGRICULTURAL SCIENCES] in Chinese
No 1, Jan 81 pp 2-6

ABSTRACT: Although the reason for low, unstable yield of upland wheat is mainly aridity, this is not the only cause. Sometime, it is not even the primary cause. The key is whether or not the cultivation measures are suitable for the arid condition. Last year, the drought was severe, the condition of dead seedlings was serious. It is the authors' opinion that the situation mandates scrutiny of every aspect of the cropping system as practice has proved that if the cultivation measures are suitable, dead seedlings should be few or none at all. This paper analyzes last year's weather condition, the relationship between the quality of land leveling and the number of dead seedlings, the condition of dead seedlings among the different breeds of wheat, the condition of dead seedlings in machine planted and manual planted fields, the effect of pressing after seeding on the condition of dead seedlings, and effects of soil fertility, different planting depth, existence of furrows, and different seeding times, etc. Several essential measures with respect to upland wheat culture in the arid region of North China are discussed at length.

AUTHOR: NAN Dianjie [0589 3013 2638]
WANG Hanqing [3769 3352 2237]
SONG Zunbin [1745 6690 2430]

ORG: NAN, WANG of Institute of Cotton, Shanxi Provincial Academy of Agricultural Sciences; SONG of Nanjing Brigade, Wanrong County

TITLE: "A Survey and Discussion of the Upland Crop Rotation System"

SOURCE: Taiyuan SHANXI NONGYE KEXUE [SHANXI AGRICULTURAL SCIENCES] in Chinese
No 1, Jan 81 pp 6-9

ABSTRACT: A reasonable crop rotation system should increase the yield of crops, and improve or preserve soil fertility. This is a proven fact. In the past several years, some areas practiced confused rotation systems and called them reasonable. The land has become increasingly thinner and the yield dropped every year. In May 79, the authors carried out a survey of some brigades of Hanxue and Huangpu Communes of Wanrong County. This paper discusses the crop rotation systems there by analyzing the existing problems, the history of these rotation systems, the ecological characteristics of the localities, etc. Three reasonable rotation systems are proposed for 3 different zones of that region for the purpose of correcting the past mistakes.

AUTHOR: SHI Jihui [0670 4949 6540]
LI Qingyuan [2621 1987 0337]

ORG: Both of Wanrong County Institute of Agricultural Sciences

TITLE: "Report of Experiment With Cultivating Upland Cotton Under a Plastic Film Cover"

SOURCE: Taiyuan SHANXI NONGYE KEXUE [SHANXI AGRICULTURAL SCIENCES] in Chinese
No 1, Jan 81 pp 10-13

ABSTRACT: When plastic film is used to cover upland cotton, such problems as lack of rain during the planting time, low temperature during the early stage, and drought during the middle stage may be minimized; the soil environment may be improved; damages from weeds, diseases, and pests are suppressed, and the yield and the quality of the cotton may be effectively raised. In 1979, the authors tested this technique in 2 mu of cotton and produced a yield increase of 31-82.4 percent. The experience with 60 mu of cotton in 1980 was even more satisfactory. After deducting the cost of plastic film of 22-38 yuan/mu, there was a net increase of 73-78 yuan/mu of income. The paper explains the effects of the plastic cover on the soil environment, the weeds, diseases, pests, and the growth and development of the cotton plants. Essential cultivation techniques when the plastic film is used to grow cotton are discussed.

AUTHOR: GENG Zhengping [1649 2973 1627]

ORG: Breed Resources Office, Shanxi Provincial Academy of Agricultural Sciences

TITLE: "Experimental Research on the Depth of Planting Gaoliang [Sorghum]"

SOURCE: Taiyuan SHANXI NONGYE KEXUE [SHANXI AGRICULTURAL SCIENCES] in Chinese
No 1, Jan 81 pp 18-20

ABSTRACT: The depth of planting is one of the important factor influencing the survival rate and quality of gaoliang seedlings. In 1979, 4 breeds of Jinza No 5, 3197, Daniuxin, and Sanchisan were seeded in varying depths of 2, 4, 6, 8, 10, 12, and 14 cm. Two tests of 200 grains of seeds were planted in each scheme, in the field as well as in pots. Effects of the various depths on the germination, survival, growth, morphology, and the length of growth and development period were studied. Aside from an above 10-12°C temperature, germination of hybrid gaoliang also requires a soil moisture of 15-17 percent for loam and 19-20 percent for clay. Springs of Shanxi have very little rain and a high wind speed and the top soil has a tendency of losing moisture very fast. For these reasons, shallow planting is not suitable, but hybrid gaoliang such as 3197A is weak in pushing off soil. It is the conclusion of the study that 4cm is suitable for hybrids; for farm breeds, under the condition of dry soil, the depth should be 4-6 cm.

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CSO: 4009

Agricultural Sciences

AUTHOR: ZHU Benming [2612 2609 2494]

ORG: Shanghai Institute of Biochemistry, Chinese Academy of Sciences

TITLE: "A New Plant Pathogen--Mycoplasma-Like Organisms MLO"

SOURCE: Shanghai SHANGHAI NONGYE KEJI [SHANGHAI AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 5 Feb 81 pp 11-13

ABSTRACT: Plant yellowing disease is a common disease manifested by symptoms of stunting, yellowing of leaves, flower organ transformed into leaves, bushy growth of side branches, etc. As these symptoms become more severe, the diseased plant becomes weaker and smaller until it finally dies. Previously it was believed that the disease originated in a physiological disorder; later it was thought of as a virus disease. In 1967, Japanese scientists discovered from bark of diseased plants particles of a size between a virus and a bacterium. The morphology and structure of this type of particles are very similar to Mycoplasmatales; therefore, they are called mycoplasma-like organisms MLO. When antibiotics of the tetracycline family are used to treat the plants, the effect appears to be obvious. Research on this new pathogen in China has also produced considerable results. For example, From the saliva gland of *Hishimonoides sellatiformis*, mycoplasma-like organisms have been isolated and the same were discovered from the bark of mulberry trees suffering from yellowing disease. Major characteristics of this plant pathogen are introduced in the paper.

AUTHOR: GU Defa [7357 1795 4099]

ORG: Institute of Crops, Shanghai Municipal Academy of Agricultural Sciences

TITLE: "Fast Determination of Viability of Wheat Seeds With Soft X-ray Instrument"

SOURCE: Shanghai SHANGHAI NONGYE KEJI [SHANGHAI AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 5 Feb 81 pp 14-16

ABSTRACT: The cell membrane of plants has the function of selective absorption of external materials. This ability is lost to dead cell membrane. If barium salt is used to treat seeds, the embryo of viable seeds will not absorb barium, while the embryo of seeds that have lost viability will. Based upon this theory, soft x-ray is used to determine the viability or the germination rate of seeds. The advantage of this method is the fact that it is fast, accurate, convenient, and it does not destroy seeds and it is not affected by the dormancy period of seeds. The author and colleagues experimented with this method on rice, wheat, lima beans, etc. for the purpose of simplifying the procedure. This paper reports the portion of the work with wheat seeds.

AUTHOR: XU Meiyu [1776 5019 3768]
SHEN Guowei [3088 0948 5898]
CHEN Duisong [7115 1018 2646]
FANG Ruyi [2075 1172 1942]

ORG: All of Institute of Crops, Shanghai Municipal Academy of Agriculture

TITLE: "Preliminary Report of ^{32}P - β Ray Internal Irradiation of Wheat Uninuclear Stage"

SOURCE: Shanghai SHANGHAI NONGYE KEJI [SHANGHAI AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 5 Feb 81 pp 17-18

ABSTRACT: On the basis of Kawai's conclusion that ^{32}P and ^{35}S function in the entire developmental period of the plant, therefore, they are more effective with respect to mutation than either x-ray or γ -ray, the authors design an experiment to inject ^{32}P radioactive solution into the center of the wheat spike in 3 positions of 25 μl , 50 μl , and 80 μl during the uninuclear stage. Identical injection is given to spikes with nonradioactive sodium dihydrogen phosphate solution to serve as the control. Effects of the radioactive sodium dihydrogen phosphate solution (^{32}P) on the characteristic of the spike and the relative absorption intensity of the above ground portion are analyzed. Mutation conditions of the offsprings of the irradiated spikes are to be further studied to compare this technique and the technique of soaking seeds in ^{32}P in the future to determine its practical value.

AUTHOR: None

ORG: Trace Elements Group, Institute of Soil and Fertilizer, Shanghai Municipal Academy of Agricultural Sciences

TITLE: "Boron Content and Distribution of Soils of Shanghai Suburbs"

SOURCE: Shanghai SHANGHAI NONGYE KEJI [SHANGHAI AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 5 Feb 81 pp 22-26

ABSTRACT: Boron is closely related to anther formation and fertilization of plants because it promotes the penetration of sugar through the cell membrane, regulates the activity of 6-phosphogluconic dehydrogenase, and suppresses the formation of toxic phenol compounds. The technique of boiling the soil in aqua regia before fluoroborate ion selective electrode determination is adopted to analyze 53 specimens of 5 types of soils collected from suburbs of Shanghai. The boron content of the plow layer is found to be 23.0-76.3 ppm, lower than the average boron content of Chinese soils (64 ppm). The difference among the 5 types of soils is not significant. In soil profile, boron distribution is generally lower in the surface top soil. This fact is related to prolonged cultivation, microbial activities, and continuous dissolution of boron minerals. Contents of effective boron vary a great deal with the different soils. Of the 162 specimens tested, it is less than 0.5 ppm (boron deficiency critical value) in 43 specimens. The contents of effective boron in the ground water are also reported. Factors affecting the effective boron content of soil are analyzed.

AUTHOR: None

ORG: Pig Mixed Feed Research Group, Institute of Animal Husbandry, Shanghai Municipal Academy of Agricultural Sciences

TITLE: "Fattening Effects of Different Methods of Mixing Porker Feed"

SOURCE: Shanghai SHANGHAI NONGYE KEJI [SHANGHAI AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 1, 5 Feb 81 pp 40-42

ABSTRACT: The quality of mechanized swine culture is related to the quality of the feed, breed of the porkers, and the health condition of the swine herd, and it is also influenced by the method of mixing the feed. An experiment is carried out to compare different methods of mixing the feed: the dry powder feed, the wet stirred feed (in a 1:1 ratio of water and dry feed), the soup feed (in a 1:3 ratio of water and dry feed), and the meal feed (in a 1:2 ratio of water and dry feed.) The test porkers are divided into two sections and each section is divided into groups to be fed with one of the mixed feed materials. The daily weight gain, the total weight gain, and the ratio of meat product of the various groups are compared. It is the conclusion of the study that soup feed is not suitable for winter, dry feed is not suitable for summer, and the economic effects of both meal feed and wet mixed feed are good. From the point of view of mechanical work, wet feed is not convenient to prepare; therefore, meal type feed is the best. Moreover, the meal type is also suitable for adding grass, dregs, pulp, etc.

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CSO: 4009

Agricultural Sciences

AUTHOR: DENG Daocheng [6772 6670 2052]

ORG: Dawu County Bureau of Agriculture

TITLE: "Analysis of Several Technical Problems in Cultivating Early Rice Seedlings in Dawu County in 1980"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCES] in Chinese No 2, Feb 81 pp 8-9

ABSTRACT: In 1980, for cultivating early rice seedlings in Dawu County, seeding was performed 5-7 days earlier than the traditional time for every batch, and 200-300 jin/mu less seeds were planted to cultivate the seedlings to more than 30 days of age, about 5 days older than usual. In some fields, techniques of early and sparse seeding were over emphasized to create the situation of either seedlings being seriously rotten or excessive use of plastic film to inflate the cost a great deal. An analysis of the data of more than 80 fields indicate that (1) The quantity of seeds planted per mu does influence the quality of seedlings to a certain extent, but it is not the major factor. (2) The range of yield increase or reduction is insignificant if the planting time varies between 16 and 31 Mar, but if seeding is delayed until after 1 Apr, the yield will have a tendency of dropping. (3) Within the range of 20-40 days of age, as the seedlings are older, the yield increases obviously. Details of the 3 conclusions are discussed.

AUTHOR: GUO Dahua [6751 1129 5478]
HUANG Shende [7806 1957 1795]

ORG: Both of Atomic Energy Center, Hubei Provincial Academy of Agricultural Sciences

TITLE: "Brief Report of Wheat Anther Culture Experiment With Mai-II Culture Medium"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCE] in Chinese No 2, Feb 81 pp 11-13

ABSTRACT: The technique of wheat anther culture has already been used in breeding, but the induction rate and evolvment frequency remain low. In the 2 years of 1979 and 80, the authors used N6 as the foundation, with some adjustment of the quantity of nitrogen source to form the Mai-II culture medium. Anther culture experiments with Mai-II produced obviously higher rates of induction results. The materials and the method of making Mai-II culture medium are explained. Results of anther culture using Mai-II are analyzed and reported. The callus tissue induction effect of Mai-II medium is also compared with N6 and one other medium in cases of 7 different hybrid wheat groupings.

AUTHOR: None

ORG: Agricultural Technology Group, Nanhu Cotton Seed Farm, Zhongxiang County

TITLE: "Rotation of Rice and Cotton is an Effective Way of Prevention and Control of Diseases, Pests, and Weeds"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCE] in Chinese No 2, Feb 81 pp 17-19

ABSTRACT: In 1975, Nanhu Cotton Seed Farm began to experiment and extend a rice and cotton rotation system. In these 6 years, with research, summation, and improvement, this crop rotation system has been expanded every year. At present, it involves 1920 mu of cotton fields in the farm, amounting to 32 percent of its total acreage. It is expected that by 1983, the rotation cycle will be completed at least once for all the cotton fields, twice for 32 percent of them, and 3 times for 15 percent of them. The effects of this rotation system on diseases and pests of soil origin, on the quantity of weeds, on the improvement of soil fertility, and on yield increase are analyzed and reported.

AUTHOR: ZHAN Zhangyan [3277 4545 1750]

ORG: Xianning County Plant Protection Station

TITLE: "Occurrence, Prevention, and Control of Rice Seedling Blight"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCE] in Chinese No 2, Feb 81 pp 19-20

ABSTRACT: Rice seedling blight is a new fungal disease. In 1974, it occurred in the county to some intermediate rice seedlings. There were some scattered incidence since then until the 2 years of 78 and 79 when all early and intermediate rice paddies of the county became involved. The damage was rather severe. According to a report of Zhejiang University of Agriculture, this disease occurs in some rice areas of Jiangsu, Anhui, Zhejiang, and Hunan Provinces as well. A 1977 report of Jiangsu College of Agriculture identified the pathogen as a new variety, with the scientific name of *Phytophthora fragariae* var. *oryzo-bladis*. Conditions of its occurrence and techniques of preventing and controlling it are briefly discussed.

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TITLE: "Principle of Occurrence of Rice Leaf Beetle and Its Prevention and Control"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCE] in Chinese No 2, Feb 81 pp 20-22

ABSTRACT: Rice leaf beetle feeds on leaves of rice. In Tongcheng County, it is a pest to all early rice crops during the early stage. Both the imago and the larva feed on leaves of rice and other plants of the family Gramineae to affect the photosynthesis activity of the plant. This paper reports its life history and habit. Its relationships with the ecological condition, with the weather factors, and with its natural enemies are studied. For its prevention and control, it is essential to burn residual stubbles in the winter. In early spring, weeds along the ponds, mountain slopes, etc. should be thoroughly removed to reduce the number of overwintering pests. In May, 50-60 jin/mu of lime scattered in the field before plowing to reduce the number of eggs may be very effective. Excessive application of nitrogen fertilizer encourages the severity of the pest and chemical pesticides may be applied during the peak of egg hatching time of the pest.

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TITLE: "Study on Experimental Diagnosis of Swine Dysentery"

SOURCE: Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCE] in Chinese No 2, Feb 81 pp 35-36

ABSTRACT: It was Taylor of England [Taylor and Blakemore: Veterinary Bulletin Vol 41 Abst. No 3871] who first isolated swine dysentery spirochaetes in 1971. In 1972, Harris of the USA [Harris, D. C. et al] also succeeded in isolating, culturing, and oral inoculation replicating identical pathogens. These results have been commonly accepted all over the world. The authors imitated the technique and isolated spirochaetes from suspected pigs. After purification and culture, healthy piglets are inoculated orally and through the colon, and obvious pathological changes are observed, 15-50 days following to reflect the long and variant incubation period of this disease. Identical swine dysentery spirochaetes are obtained from the inoculated piglets. This technique has, therefore, been proven to be a reliable method of diagnosis. Although the procedure is complicated and the time, manpower, and material consumption is excessive, the authors recommend its adoption and extension.

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CSO: 4009

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TITLE: "Effect of Hydrogen Peroxide on the Germination of Cotton Seeds"

SOURCE: Shanghai ZHIWU SHENGLIXUE TONGXUN [PLANT PHYSIOLOGY COMMUNICATIONS]
in Chinese No 5, 20 Oct 80 pp 21-26

ABSTRACT: The number of cotton seeds used in planting far exceeds the number of cotton plants growing in the field. This is a special problem of cotton, different from such crops as wheat, rice, rape, etc. Aside from disease and pest damage during the seedling stage of cotton, the primary reason is the low germination rate of cotton seeds. It is necessary to plant a large quantity of seeds to guarantee all the needed seedlings. The authors carried out experiments in 1975 and 76 to raise the germination rate of seeds and to explain the reason for a low germination rate of cotton seeds. Results of experiments demonstrate that under presence of oxygen the germination rate of cotton seeds is about 10 percent higher than under the condition of oxygen deficiency, and treatment with hydrogen peroxide improves the germination rate obviously even in case of old seeds harvested in the previous year. Details of these experiments are reported.

This paper was received for publication in Aug 78.

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TITLE: "Effects of Low Temperature Treatment on Induction and Evolvment of Anther Callus Tissue of Rice"

SOURCE: Shanghai ZHIWU SHENGLIXUE TONGXUN [PLANT PHYSIOLOGY COMMUNICATIONS]
in Chinese No 5, 20 Oct 80 pp 37-40

ABSTRACT: Anther culture work has been extensively developed in China in recent years and there have been some achievements, but all in all, the rate of successful culture of anther plants of rice remains not high. Some units are currently using low temperature to treat anthers of various crops to improve the callus tissue induction rate, with varying techniques and results. Reports on physiological effects of low temperature on anther are very scarce. This paper reports the results of experiments carried out in the past 2 years to study the subject. It appears that low temperature treatment does not have adverse effects and can increase the induction rate and the green seedling evolvment rate in a large scale. The effect of placing rice plant with roots removed, in a refrigerator of 6-8°C for 1-24 days (pretreatment) before inoculation of the anther appears to be better than other forms of low temperature treatment.

This paper was received for publication on 6 Oct 79.

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TITLE: "Research on Baicao [Barnyard Grass: *Echinochloa crusgalli*] in the Region of Shanghai"

SOURCE: Shanghai ZHIWU SHENGLIXUE TONGXUN [PLANT PHYSIOLOGY COMMUNICATIONS]
in Chinese No 5, 20 Oct 80 pp 40-46

ABSTRACT: Baicao is the major weed of China's rice paddies and is also one of the acknowledged major destructive weeds in the world. A survey by the authors indicates that in the 0-2 layer of soil, seeds of various varieties of this grass number as many as 180,000 grains/mu. In rice seeds, seeds of this grass amount to 1-8.4 percent. As an attempt to understand the physiology and ecology of this grass so as to improve the efficiency of its control, the authors carried out a series of studies in 1973-76. A preliminary investigation of the principle of its occurrence in the rice paddies of Shanghai, its developmental habits, and its damage to crops effects of ABA and ISMA on the dormancy and germination of seeds of this grass are

This paper was received for publication in Apr 79.

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TITLE: "Effect of Gibberellin on Boll Shedding of Cotton"

SOURCE: Shanghai ZHIWU SHENGLIXUE TONGXUN [PLANT PHYSIOLOGY COMMUNICATIONS]
in Chinese No 5, 20 Oct 80 pp 46-48

ABSTRACT: Many factors are involved in boll shedding of cotton, but in the final analysis, a chemical information is perhaps sent through phyto-hormone to either accelerate or delay shedding of bolls. Based upon this assumption, the authors used GA₃ (a product of Shanghai Pharmaceutical Plant No 3) to carry out a series of experiments on cotton plants. When GA₃ is painted on unfertilized bolls, shedding is definitely delayed, compared with unfertilized bolls painted with water. On fertilized bolls, the shedding rate is not much different with GA₃ or without. This paper was received for publication in Dec 79.

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CSO: 4009

Rural Scientific Experiments

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TITLE: "The 'Eight-Five' Method of Land Leveling"

SOURCE: Changchun NONGGUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese
No 10, Oct 80 pp 2-3

ABSTRACT: The 'eight-five' method of land leveling is a method of using a piece of land measuring 8.5m wide and about 85 m long as a unit to level it horizontally until it is flat and vertically until it is a smooth slope. In this manner a dry field is ready to be irrigated. This is the method created by the 81 Irrigation District of Lishu County in 1979. Previously, an overwhelming amount of labor had to be used to dig the 4-stage channel system and a great deal of water was needed to irrigate the 900,000 plus mu of land of the district. With this method, 3 man-day of work is sufficient to prepare one mu for irrigation and only 32 m³ of water is needed to irrigate one mu of land. The essence of the method is to divide up a large block of land into small units, just large enough for plowing with either animal or machine power. Permanent and semi-permanent channels are built into the system. The paper includes diagrams to depict directions of flow of the irrigation water.

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TITLE: "Plant Growth Regulators and Soybean Production"

SOURCE: Changchun NONGGUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese
No 10, 10 Oct 80 p 14

ABSTRACT: In soybean cultivation, if suitable applications of plant growth regulators are used, a very great yield increase may be obtained. This paper introduces 3 types of plant growth regulators: (1) 2,3,5-triodobenzoic acid; (2) dwarf agent [CCC; cycocel]; (3) petroleum growth agent [sodium cycloparafinic acid]. The function of each of the 3 chemicals and their application in soybean production are briefly explained in separate sections in the paper.

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TITLE: "Win the Battle Over Low Temperature Cold Damage to Obtain Abundant Harvest"

SOURCE: Changchun NONGCUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese No 12, 10 Dec 80 p 23

ABSTRACT: Low temperature cold damage has become a more and more frequent natural calamity in Jilin Province in recent years. According to the statistics of a related scientific research department, in the 30 years from 1949 to 1978, there were 11 years of abundant harvests; 11 years of average harvests; and 8 years of low harvests. On the average, a low harvest year appeared every 3-4 years. Low temperature damage affects not only the yield of the current year but also that of the year following. For example, 1976 was a damaged year and a serious deficiency of seeds occurred in 1977. There is a common belief that yield fluctuation is caused by the contradiction between the long growth and development period of crops and the short frostfree period of the locality. Statistical data revealed that during the years of abundant harvests, the frostfree period averaged 128 days while during the low harvest years, it averaged 135 days. Moreover, 1967 was a year of bountiful harvest, but the frostfree period was only 118 days. The paper explains that the key is the effective accumulated temperature between May and September, and suggests cropping measures to combat cold damage during years of deficient heat energy.

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